

by Lowe (Nautilus, vol. 27, p. 26) to be "In their prime" at Cape Colnette, Lower California. In general shape they are quite similar to small specimens of variety *punctulata* Sowerby but the color pattern is quite distinct. They are "externally painted with longitudinal broad black and narrow whitish streaks, interrupted by the white dental groove," thus cutting the black colored streaks up into large squares. In variety *punctulata* the light color predominates and the dark is reduced to small square dots. A large series recently collected near Laguna, Orange County, show markings intermediate between the two. It is quite probable that further collecting and study will show that *paucilirata* is only a southern form of variety *punctulata* and it will also have to be classed as a variety of *Acanthina spirata* Blainville.

The Lower California species *Acanthina lugubris* Sowerby, 1822, is reported from San Diego on the strength of a single specimen found there some years ago. Orcutt reports it quite common as far north as the International Boundary Line. It has been stated that *Acanthina paucilirata* Stearns forms the connecting link between *lugubris* and *engonata*. If further collecting along the northern portion of the coast of Lower California, where the ranges of the different forms overlap, shows the full series of intergrades, still further changes in the nomenclature will have to be made. In groups of this kind where the forms are so variable it is difficult to draw the line between variety and species, and the question of possible hybrids is always present.

**MARINE SHELLS OF DRIER BAY, KNIGHT ISLAND, PRINCE WILLIAM
SOUND, ALASKA.**

BY WALTER EYERDAM

During the summer of 1923, while engaged at my trade as cooper in the herring saltery of the Knight Island Packing Co. in Drier Bay, Prince William Sound, I utilized much of my spare time in dredging and searching for shells along the beaches.

Drier Bay is about 35 miles by boat from La-Touche; it is an indentation of Knight Island, about 10 square miles in area. Steep mountains surround the bay, causing steep rocky beaches in most places and often fairly deep water in close to the shore. In Mallard Bay, Cat-head Bay and Miner's Cove, as well as several other coves and small bays belonging to Drier Bay proper, the beaches are covered with fucus and at low tide with abundance of eelgrass, and the water is quite shallow.

The best collecting was obtained by washing the roots and leaves of eelgrass, which often grew to the length of 12 feet. About a ton of eelgrass was washed in tubs and the mud screened and panned, after which the remaining débris and shells were carefully examined and separated, and many rare species of small shells were thus obtained.

Most of the *Odostomias* and several other small rare species were found among stones and sea-moss at low tide in Mallard Bay. About a dozen species of *Chitons* were found, some of them from a depth of 200 feet.

Dredging was rather poor considering the large amount of physical effort that was performed. About 150 hauls were made at depths of 10 to 40 fathoms. Most of the dredging was done near the herring dock by rowing out about 200 feet and dropping the dredge and then rowing back to tie the boat to a piling, after which I proceeded to haul in the dredge rope by hand. It was generally chockfull of rocks and débris and often weighed over 200 lbs. The results were not always gratifying considering the meager returns that I generally got, but whenever I found a new shell I would try again. Sometimes in the fall of the year when there was very little work to do in the shop I would spend most of a day out in a small rowboat dredging shells. Three times during the season I lost my whole dredging outfit in waters ranging from 35 to 200 feet in depth, but each time I succeeded, with patience and perseverance, to snag it up again.

Many rare small shells were dredged, including two new species: *Turbonilla (Pyrgolampros) eyerdami* (Bartsch) and *Puncturella eyerdami* (Dall), and twenty-six species were found beyond their geographical ranges.

Most of the shells were sent to Doctor Bartsch for identification, to whom I am greatly indebted.

The following shells, comprising 139 species, were collected in Drier Bay:

- Nucula tenuis* (Montagu). Scarce, in soft mud; dredged.
Leda fossa (Baird). Not common, in mud, mostly dead shells; dredged.
Leda minuta (Fabr.). Scarce, in mud; dredged.
Yoldia myalis (Couth.). 2 or 3, in soft mud; dredged.
Yoldia montereyensis (Dall). Rare, in soft mud; dredged.
Yoldia species. In soft mud, dead shells; dredged.
Chlamys hericeus (Gould). Fairly common on stony bottom.
Propeamysium alaskense (Dall). Not uncommon; dredged.
Limatula subauriculata (Mont.). Quite common; 30 fathoms.
Monia macrochisma (Desh.). Common on rocks at low tide; very thin.
Mytilus californianus (Conrad). Rare, at low tide.
Mytilus edulis (Linn.). Very common.
Modiolus modiolus (Linn.). Very common.
Musculus niger (Gray). Rare; dredged.
Musculus vernicosus (Midd.). Very common on eelgrass to which it is attached by a byssus.
Crenella decussata (Mont.). Common on roots of eelgrass.
Thracia curta (Conrad). Rare, in fine mud; 25 fathoms.
Kennerlia bilirata (Conrad). Not common, fine mud.
Cuspidaria bringensis (Leeche). One specimen.
Cuspidaria planetica (Dall). Two specimens, muddy. 25 fm.
Astarte alaskensis (Dall). Common; 10 to 40 fathoms.
Astarte rictocyma esquimalti (Baird). Common; dredged.
Venericardia crebricostata (Krause). Rare.
Thyasira gouldii (Philippi). Common; dredged.
Diplodonta aleutica (Dall). Under stones at low tide.
Parvilucina tenuisculpta (Cpr). Common; dredged.
Serripes groenlandicus (Gmelin). Rare; dredged.
Saridomus giganteus (Desh.). Very common on sandy beaches.
Marcia keenerlyi (Reeve). A few specimens; 20 fathoms.

- Marcia subdiaphana* (Cpr.). Rare; dredged.
- Protothaca staminea* (Conrad). Common on muddy, stony beaches.
- Psephidia lordi* (Baird). Not common; dredged.
- Macoma sitkana* (Dall). On muddy beaches.
- Macoma nasuta*. Muddy beaches.
- Macoma balthica* (Linn.). Very common on muddy beaches.
- Spisula (Polynyma) alaskana* (Dall). Rare on beach.
- Mya truncata* (Linn.). Not common, on muddy beach.
- Mya intermedia* (Dall). Fairly common on muddy beach; young.
- Saricava arctica* (Linn.). Very common on old piles and submerged wood and also floating wood.
- Saricava pholadis* (Linn.). Same habitat but less common.
- Bankia setacea* (Tryon). Destroys all wharves and wood in a few years.
- Cadulus hepburni* (Dall). Common below low tide mark.
- Acteocina culcitella* (Gould). Dredged; not common.
- Acteocina eximia* (Baird). Common on eelgrass roots.
- Retusa semen* (Reeve). Dredged frequently.
- Retusa harpa* (Dall). Dredged; not common.
- Haminoca olgae* (Dall). Very common on eelgrass.
- Lora quadra* (Dall). Dredged; two specimens.
- Lora mörchi* (Leche). Dredged; one specimen.
- Lora harpularia* (Couthony). Dredged; a few specimens.
- Lora solida* (Dall). Dredged; six specimens.
- Lora chiachiana* (Dall). Dredged; not uncommon.
- Lora rosea* (M. Sars.). Dredged; about a dozen specimens.
- Lora beckii* (Moller). One specimen.
- Admete couthouyi* (Jay). Dredged; quite common.
- Olivella boetica* (Cpr.). Dredged; one specimen.
- Searlesia dira* (Reeve). Very common on rocky beaches.
- Schizopyga mendica* (Gould). On beaches, not common.
- Tritonalia interfossa* (Cpr.). Dredged; not common.
- Neptunea tenuisculpta* (Cpr.). Rare, under stones at low tide.
- Thais lamellosa* (Gmelin). Very common on rocks at high tide mark.
- Thais lima* (Martyn). Common on rocks.

- Thais emarginata* (Deshayes). Common, rocks.
- Melanella micans* (Cpr.). Dredged; one specimen.
- Turbonilla (Mormula) eschscholtzi* (Dall & Bartsch). Rare.
- Turbonilla (Pyrgolampros) eyerdami* (Bartsch). 3 specimens.
New species. Dredged from 20 fathoms, shelly bottom.
- Odostomia (Evalea) quadrae* (Dall and Bartsch). Among stones on beach, rare.
- Odostomia (Evalea) skidegatensis* (Bartsch). Among stones.
- Odostomia (Evalea) willetti* (Bartsch). Among stones on beach.
- Odostomia (Evalea) stephensae* (Dall & Bartsch). Among stones on beach.
- Odostomia (Amaura) sanjuanenses* (Bartsch). Rare, among stones at low tide.
- Odostomia (Amaura) talpa* (Dall & Bartsch). Among stones at low tide.
- Cypraeolina pyriformis* (Cpr.). Fairly common on seaweeds at low tide in Mallard Bay.
- Cerithiopsis charlottensis* (Bartsch). Not common.
- Cerithiopsis onealensis* (Bartsch). One specimen.
- Bittium (semibittium) vancouverense* (Dall & Bartsch). Common at low tide.
- Trichotropis cancellata* (Hinds). Dredged; common.
- Trichotropis insignis* (Midd.). Dredged; common.
- Michanellum oregonense* (Bartsch). Dredged; not common.
- Furtulum occidentale* (Bartsch). Dredged; not common.
- Tachyrhynchus erosus major* (Dall). Dredged; common.
- Tachyrhynchus lacteolus* (Cpr.). Dredged; not common.
- Littorina sitchana* (Philippi). Very common on rocks.
- Littorina rudis* (Donovan). Very common on rocks.
- Littorina scutulata* (Gould). Common on rocks.
- Lacuna divaricata* (Fabr.). Very common on eelgrass.
- Lacuna* sp. On eelgrass.
- Cingula aleutica* (Dall). On eelgrass; six specimens.
- Alvania reticulata* (Cpr.). Common on eelgrass roots.
- Crepidula lingulata* (Gould). Not common; dredged.
- Crepidula nummarius* (Gould). Dredged; not common.
- Natica (Cryptonatica) aleutica* (Dall). Dredged; common.

- Natica (Euspira) pallida* (Brod. & Sowb.). Dredged; not common.
- Natica (Euspira) monterona* (Dall). Dredged; one specimen.
- Velutina laevigata* (Linn.). A few specimens from stones.
- Lepeta concentrica* (Midd.). Common at low tide on rocks.
- Lepeta caecoides* (Cpr.). Common at low tide under stones.
- Acmaca nitra* (Esch.). Two specimens.
- Acmaca cassis pelta* (Esch.). Common.
- Acmaca scutum* (Esch.). Not common.
- Acmaca peramabilis* (Dall). Three young specimens.
- Cidarina cidaris* (A. Adams). Three specimens, mud; 40 fm.
- Machaeroplax varicosus* (Mighels & Adams). Dredged; one specimen.
- Pupillaria pupilla* (Gould). Very common at low tide.
- Pupillaria cinerea* (Couth.). Dredged; one specimen.
- Pupillaria pupilla*. Several varieties.
- Margarites helycinus* (Phipps). Very common on eelgrass.
- Margarites marginata* (Dall). Very common on eelgrass.
- Diadora aspera* (Esch.). Scarce, on rocks at low tide.
- Puncturella eyerdami* (Dall). *New species*. Three specimens. 25 fathoms.
- Puncturella galeata* (Gould). Dredged; not common.
- Puncturella cucullata* (Gould). Dredged; not common.
- Siphonaria thersites* (Cpr.). Common on fucus.
- Kellia laperousii* (Deshayes). Among stones on the beach.
- Hemithrys psittacea* (Lam.). Dredged; not common.
- Terebratalia transversa* (Sowb.). Dredged; not common.
- Laqueus californicus* (Koch). Dredged; young; common.
- Terebratulina unguicula* (Cpr.). Dredged; not common.
- Terebratalia caurina* (Gould). Dredged; common.
- Spirorbis (species)*. Very common on fucus and eelgrass.
- Columbella (Nitidella) gouldii* (Cpr.). Dredged; 2 specimens.
- Rochefortis tumida* (Cpr.). On eelgrass.
- Turtonia minuta* (Fabr.). On eelgrass.
- Cryptomya californica* (Conrad). Dredged; two specimens.
- Cylichnella alba* (Brown). Dredged; not common.
- Argobuccinum oregonense* (Redf.). Only one mature specimen. This species is very abundant in some parts of Prince William Sound.

- Buccinum morchianum* (Fischer). Common under rocks.
Trachydermon ruber (Linn.). Dredged; not common.
Trachydermon albus (Linn.). Dredged; not common.
Trachydermon (Cyanoplax) hartwegii (Cpr.). Under stones.
Tonicella submarmorca (Midd.). Dredged; common.
Ischnochiton interstinctus (Gould). Dredged; common.
Ischnochiton (Trioplax) trifidus (Cpr.). Dredged; rare.
Mopalia sinuata (Cpr.). Dredged; rare.
Katherina tunicata (Wood). On rocks; scarce.
Mopalia (ciliata) wossnessenskii (Midd.). Under rocks; not common.
Tonicella lineata (Wood). Under stones; common.
Mopalia muscosa (Gould). Under stones.
Cryptochiton stelleri (Midd.). On rocks; not common.

Besides the above list of 141 species, about 50 other species of invertebrates were collected. Among these are some very rare starfishes and crustaceans. Two very rare crabs, *Chionectes bairdi* (Rathbun) and *Pinnixa schmitti* (Rathbun), were retained by the U. S. Nat. Museum, and also a number of a new species of *Bryozoa*, *Discocylis* (Bassler), the last species being the first of its kind from Alaskan waters.

Two land shells were found, being fairly common in one place under old boards and building paper—*Polygyra columbiana* (Lea) and *Circinaria sportella* (Gould).

SOME UNPUBLISHED PLATES OF CONRAD'S "UNIONIDAE".

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The abrupt ending (with the incomplete word beautiful on page 118) of the work "Monography of the Family Unionidae, or Naiades of Lamarek, . . .," by T. A. Conrad, Philadelphia, 1836 [1835-1840], indicated that further parts were then contemplated. In all, thirteen appeared, with five plates each, a total of sixty-five plates.